RIZKIN, A. A.

PA 167T46

USSR/Electricity - Transients Sep 50
Four-Terminal Networks

"Method of Analyzing Transient Processes in Linear Four-Terminal Networks," A. A. Rizkin, Cand Tech Sci, Leningrad Elec Eng Inst of Communications imeni Bonch-Bruyevich

"Elektrichestvo" No 9, pp 66-67

Shows possibility of extending method of analyzing transient processes in linear selective four-terminal networks to any linear four-terminal network. Method can then be used to solve general electrical engineering problems as well as radio engineering problems.

[redacted] 167T46

RIZKIN, A. A.

Osnovi Teorii Usilitelnikh Skhem (Basic Theory of Amplifier Circuits), Soviet Radio, Moscow, 1951.

RIZKIN, A. A.

Fundamentals in the theory of amplifier design Moskva, Sovetskoe radio, 1951. 302.
(54-26701)

KRYLOV, Nikolay Nikolayevich, professor, doktor tekhnicheskikh nauk; RIZKIN, A.A., kandidat tekhnicheskikh nauk, redaktor; ALEKSANDROV, L.A., redaktor; VOLKOVA, Ye., redaktor.

[Theoretical principles of radio engineering] Teoreticheskie osnovy radiotekhniki. Izd. 2., stereotipnoe. Moskva, Morskoi transport, 1953. 552 p. (MLRA 7:5)
(Radio)

RIZKIN, A.A.

Methods of designing circuits equipped with crystal triodes.
Radiotekhnika 8 no.4:59-69 Jl-Ag '53. (MIRA 11:6)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i svyazi im. Popova.
(Radio circuits) (Transistors)

RIZKIN, A.A.

FUNDAMENTALS OF THE THEORY OF AMPLIFYING CIRCUITS, Second Edition, Izd. "Sovetskoye radio", M., 1954, 439 pages,

The first five chapters give the general methods for analyzing amplifying circuits, and also a survey of selective amplifiers, audio frequency amplifiers and amplifiers with feedback. The sixth chapter is devoted to wide-band amplifiers, complex circuits for their correction, and also the internal noises of amplifiers. Chapters 7 and 8 discuss the operating principles of impulse amplifiers and some circuits. In chapters 9, 10 and 11 the author gives a description of d.c. amplifiers, power audio amplifiers working under various conditions, and also tubeless amplifiers -- crystal and magnetic.

RIZKIN, A.A., kandidat tekhnicheskikh nauk; FINKEL'SHTEYN, I.A., kandidat tekhnicheskikh nauk.

Generator operating on a wide frequency band. Vest.sviazi 14 no.10: 7-8 O '54. (MLRA 7:11)

(Oscillators, Electron-tube)

Circuits

RIZKIN, A.A.

FD 2940

90 - 5/12

Author : Rizkin, A. A., Active Member, VNORiE

Title : Selective RC Circuits

Periodical : Radiotekhnika, 10, 31-38, May 55

Abstract : In view of the recent widespread application of selective RC circuits, since they do not require the cumbersome inductances of LC circuits at low frequencies and can be used at frequencies up to tens of megacycles, the author presents a general method for analysis of selective RC circuits and a criterion for classifying them. He also examines some new circuits. He treats maximal and minimal circuits, supplementary circuits, circuits with reactance tubes, and circuits with a transfer ratio greater than unity. Diagrams, graphs. Three references: 2 USSR.

Institution : All-Union Scientific and Technical Society of Radio Engineering and Electric Communications imeni A. S. Popov (VNORiE)

Submitted : August 31, 1953

RIZKIN, Abel' Aronovich (Odessa Electrotech Inst of Communications) awarded sci degree of Doc Tech Sci for 22 Jun 56 defense of dissertation: "Some problems of the theory of reinforcing [usilitel'nykh] systems" at the Council, Mos Electrotech Inst of Communications; Prot No 4, 15 Feb 58.

(BMVO, 6-58,21)

USSR/Radiophysics - Application of Semiconductor Instruments, I-10

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 35361

Author: Rizkin, A. A.

Institution: None

Title: Design of Transistor Stages Using the Regeneration Method

Original Periodical: Radiotekhnika, 1956, 11, No 5, 56-64

Abstract: None

Card 1/1

AID P - 4563

Subject : USSR/Electronics

Card 1/2 Pub. 90 - 6/8

Author : Rizkin, A. A.

Title : Regeneration method of calculating transistor triodes in cascade.

Periodical : Radiotekhnika, 5, 56-64, My 1956

Abstract : The author bases his method of calculating transistor amplifiers in cascade on the principle of the regenerative (positive) feedback and, in particular, on the "regeneration factor" (p). He defines it as a ratio of the component of the emitter's current depending on the current generator (i_e'), and of the total emitter's current (i_e) consisting of i_e' and of the signal source current (i_e^o). Thus $p = \frac{i_e'}{i_e' + i_e^o}$. The

AUTHOR: Rizkin, A.A.

TITLE: A-U Sci Conf dedicated to "Radio Day," ·Moscow 20-25 May 1957. "Regeneration and Neutralization of Stages in Transistors,"

PERIODICAL: Radiotekhnik i Elektronika, Vol. 2, No. 9, pp. 1221-1224 1957, (USSR)

For abstract see L.G. Stolyarov

RIZKIN, A.A.

Generalized analysis of amplifier stages. Elektrosviaz' 11 no.3: 8-13 Mr '57. (MLRA 10:5)

(Amplifiers, Electron-tube)

108-7-12/13

AUTHOR: Not given

TITLE: Technical-Scientific Conference Held at Odessa, dedicated to the Day of Radio. (Nauchno-tekhnicheskaya konferentsiya v Odesse, posvyashchennaya dnyu radio, Russian)

PERIODICAL: Radiotekhnika, 1957, Vol 12, Nr 7, pp 79-80 (U.S.S.R.)

ABSTRACT: The XI. technical-scientific Conference took place in April 1957 at Odessa. During the main session the following lectures were held: A.A.RIZKIN: "On some problems from the theory of the amplifier schemes with transistors", A.YU.LEV: "On works carried out in the field of compression of the phone spectrum." 58 lectures were delivered at the conference, 14 of them in the department of radioengineering and 16 in that of electric telecommunication. Special interest was caused by the lecture delivered by A.I.KHACHATUROV on "The problem of the stability of reception for retranslation in aircraft". A.A.RIZKIN spoke about "Generalized equivalent schemes and generalized amplifier cascades."

ASSOCIATION: Not given

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

Card 1/1

PHASE I BOOK EXPLOITATION 750

Rizkin, Abel' Aronovich

Osnovy teorii usilitel'nykh skhem (Principles of Amplifier Circuit Theory) 3rd ed., rev. and enl. Moscow, Izd-vo "Sovetskoye radio", 1958. 527 p. No. of copies printed not given.

Ed.: Aleksandrova, A.A.; Tech. Ed.: Koruzev, N.N.

PURPOSE: The monograph is intended for engineering and scientific personnel, instructors and students of vuzes dealing with amplification electronics.

COVERAGE: The book presents a detailed discussion of general methods of analysis of amplifier circuits. Tuned amplifiers, voltage and power amplifiers for audio frequency, feedback amplifiers, wideband amplifiers, pulse amplifiers, and transistors are discussed. Classification and general theory of tuned RC-circuits are presented and phase-inversion circuits are covered. Circuit transients and general problems of amplifier circuits are discussed. In the chapter covering transistor amplifiers,

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circuit theory of triode transistors is presented. Transistor voltage and power amplifiers for audio frequency, transistor feedback amplifiers, noise, and nonlinear distortions in transistor stages are also discussed. A method of regeneration which makes it possible to obtain simple expressions for cutoff frequency, rise time, gain, and stability of a transistor stage is given. No personalities are mentioned. There are 60 references, of which 52 are Soviet (including 2 translations), 7 English, and 1 French.

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AVAILABLE: Library of Congress

JP/mal
11-5-58

AUTHOR: Rizkin, A.A. Sov/106-58-2-2/16

TITLE: Regeneration and Neutralisation of Transistor Stages (O regeneratsii i neytralizatsii kaskadov na poluprovodnikovykh triodakh)

PERIODICAL : Elektrosvyaz', 1958, Nr 2, pp 12 - 19 (USSR).

ABSTRACT: It is first pointed out that the generalisation made by Strutt (Poluprovodnikovyye Pribory - Semi-conductor Devices, Gosenergoizdat, 1956) to the effect that an increase in the value of the resistance common to input and output circuits of a common-base connection reduces its stability does not apply to the common-emitter connection. A statement made by Stern, Aldridge and Chow (Proc.I.R.E., July, 1955), that neutralisation in fact eliminates the internal feedback is also misleading. After a general discussion on the representation of feedback in transistors by the use of current- and voltage-sources, it is shown, with reference to a general four-pole, that neutralisation is no more than a de-coupling of input and output circuits. The other shortcomings of a transistor stage, i.e. its low cut-off frequency and poor stability, still remain. For example, in the common-emitter circuit of

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Sov/106-58-2-2/16

Regeneration and Neutralisation of Transistor Stages

Figure 10, bridge-neutralised with the aid of a voltage divider across the input, the regeneration coefficient has almost its original value. There are 11 figures and 4 references, all of which are Soviet.

SUBMITTED: June 11, 1957

Card 2/2

1. Transistors--Stability 2. Transistors--Performance
3. Semiconductors--Resistance

GINZBURG, S.G.. Prinimal uchastiye RIZKIN, A.A., dotsent; IVANUSHKO, N.D., red.; SVESHNIKOV, A.A., tekhn.red.

[Methods of solving problems of transients in electric networks] Metody resheniia zadach po perekhodnym protsessam v elektricheskikh tsepiakh. Izd.2., dop. i perer. Moskva, Sovetskoe radio, 1959. 403 p. (MIRA 13:2)
(Electronic circuits)

26431
S/106/60/000/005/005/009
A055/A133

9.3240 (1040, 1067, 1139)

AUTHOR: Rizkin, A. A.

TITLE: Regeneration factor and stability of circuits containing dependent sources.

PERIODICAL: Elektrosvyaz', 14, no. 5, 1960, 28-37

TEXT: In his earlier articles [Ref. 1: "Raschet kaskadov na kristallicheskikh triodakh po metodu regeneratsii" ("Design of crystal triode stages with the aid of the regeneration method"), Radiotekhnika, v. 11, no. 5, 1956; Ref. 2: "O regeneratsii i neytralizatsii kaskadov na poluprovidnikovykh triodakh" ("On the regeneration and neutralization of transistorized stages"), Elektrosvyaz', no. 2, 1958], the author introduced the concept of the regeneration factor and applied it to circuits containing one dependent source. (The same concept was used later by Thomas, "Some design considerations for H-F transistorized amplifiers", BSTJ, vl. XXXVIII, no. 6, November, 1959). In the present article, the author gives a generalized definition of the regeneration factor and applies it to the analysis of the stability of circuits with two or more dependent sources. The regeneration factor ρ is a dimensionless magnitude which becomes zero in

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the absence of a dependent source in the circuit, and is equal to one in the point corresponding to the circuit's self-excitation threshold. In an appendix to the present article, it is proved that, in the case of a circuit of the most general type, but containing only one dependent source, the following relation is true:

$$1 - \rho = \frac{\Delta}{\Delta^{o}} \qquad (3)$$

where Δ is the determinant of the circuit, and Δ^{o} is the value of this determinant corresponding to the extinguished source, i.e. to $\rho = 0$. Formula (3) can also be applied to the case of a circuit with two or more dependent sources, Δ^{o} becoming then the value of the determinant corresponding to the extinction of all these sources. The regeneration factor is not invariant when the circuit is transformed according to the four-pole theory; such transformations imply indeed a change in the nature of the sources to which the regeneration factor is "bound". However, when different circuits are used, this factor remains unchanged if it is "bound" to sources of identical origin. It is also pointed out that the self-excitation conditions, corresponding to $\rho = 1$, coincide in all cases. The correctness of these assertions is demonstrated by the author on appropriate equivalent circuits. Nevertheless, the expression giving the regeneration factor may prove different, depending on the type of the equivalent circuit and on the nature of the sources acting therein. The author then investigates the stability of circuits containing dependent sources. Starting from formula (3) and using the theory of the complex-variable function, he shows that, if Δ^0 has no zeros in the right-hand half-plane of the complex variable $p = \sigma + i\omega$, Δ will have no zeros in the right-hand half-plane provided the closed hodograph of vector ρ, constructed for $-\infty$ to $+\infty$ frequency-band, will not envelop point (1.0). This means that, if a circuit with extinguished sources is stable, the necessary and sufficient condition for its stability in the active presence of sources is that the above hodograph should not include point (1.0). It must be noted, however, that the extinction of sources ($\rho = 0$) is by no means identical with the neutralization of the circuit. The problem of "degenerated" circuits (containing no reactive elements) is somewhat different: several degenerated circuits having different stability characteristics can correspond to the same matrix of real elements. By absolute stability of circuits with dependent sources, the author understands the absence of intersection points of the hodograph of ρ with the axis of real values in point (1.0) or to the right of it. The condition of absolute stability can be written as follows:

$$\mathrm{Re}\,\rho < 1, \quad \text{if} \quad \mathrm{Im}\,\rho = 0$$

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Regeneration factor and stability of circuits ...

Supposing that:

$$\rho = \frac{a + i\,b}{c + i\,d}, \qquad (9)$$

we obtain:

$$\frac{ac + bd}{c^2 + d^2} < 1 \quad \text{at } bc = ad \qquad (10)$$

The stability criterium, such as determined above, can be applied directly only to circuits that are stable with extinguished sources. In the case of stable systems which are unstable with extinguished sources, the necessary and sufficient condition (for stability) is that the ρ-hodograph of such circuits should include point (1.0) and that, with the frequency varying from 0 to ∞, the vector $1 - \rho$ should turn by π in anticlockwise direction as many times as there are roots with positive real component in equation $\Delta^0 = 0$. All the statements of the author regarding stability are illustrated by examples involving various equivalent circuits. There are 9 figures and 4 Soviet-bloc references.

SUBMITTED: November 25, 1959.

Card 4/4

RIZKIN, Abel' Aronovich; VORONOVA, A.I., red.; SLUTSKIN, A.A., tekhn. red.

[Transistor amplifiers] Poluprovodnikovye usiliteli. Moskva, Gos. izd-vo lit-ry po voprosam sviazi i radio, 1961. 118 p. (MIRA 14:11)

(Transistor amplifiers)

24076
S/106/61/000/002/005/006
A055/A133

9,2520

AUHTOR: Rizkin, A. A.

TITLE: Calculation of transistorized video-amplifiers

PERIODICAL: Elektrosvyaz', no. 2, 1961, 42 - 52

TEXT: The first part of this article deals with the general theory of h-f amplifier circuits with semiconductor-triodes making it possible to design high-quality video-amplifiers. Formulae giving current-amplification and voltage amplification are derived for the cases of common-emitter, common-collector and common-base arrangements. The Q-factor of semiconductor-triodes from the point of view of h-f amplification is calculated. (By Q-factor of a transistorized amplifier stage, the author understands the product of the current-amplification by the frequency in the asymptotic region of very high frequencies.) The second part of the article describes two different designs of transistorized video-amplifiers with negative feedback: 1) a one-stage amplifier with negative feedback of the parallel type and with a correcting inductance inserted into the feedback circuit; 2) a two-stage amplifier with negative feedback of the series type. In both cases, a detailed theoretical analysis of the amplifier circuits is accompanied by a practical example corroborating the theoretical conclusions. The advant-

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Calculation of transistorized video-amplifiers

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age of using feedback and the correcting inductance in transistorized h-f amplifier circuits is proved. There are 6 figures and 3 references; 2 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: Thomas: "Some design considerations for high-frequency Transistor Amplifiers". BSTJ, XXXVIII, no. 6, 1959.

SUBMITTED: May 17, 1960

Card 2/2

RIZKIN, A.A.; SHUMLYANSKIY, I.I.; KHROMYKH, M.K.

Concerning the academic plans of radio engineering departments.
Izv. vys. ucheb. zav.; radiotekh. 4 no.4:504 Jl-Ag '61.
(MIRA 14:11)

1. Odesskiy elektrotekhnicheskiy institut svyazi.
(Radio)

RIZKIN, Abel' Aronovich; VORONOVA, A.I., red.; SLUTSKIN, A.A., tekhn. red.

[Transistor amplifiers]Poluprovodnikovye usiliteli. Izd.2., perer. i dop. Moskva, Sviaz'izdat, 1962. 135 p. (MIRA 15:12)

(Transistor amplifiers)

RIZKIN, A.A.

Concerning the nonlinearity of the characteristics of a tunnel diode. Radiotekh. i elektron.7 no.6:1062-1063 Je '62. (MIRA 15:6)
(Tunnel diodes)

RIZKIN, A.A.

Feedback considerations in electronic networks. Elektrosviaz' 16 no.5:37-40 My '62. (MIRA 15:5)
(Transistor circuits) (Feedback (Electronics))

LEV, Aleksand- Yul'yevich; RIZKIN, A.A., otv. red.; KOMAROVA,
Ye.V., red.; ROMANOVA, S.F., tekhn. red.

[Wire broadcasting amplifiers] Usiliteli provodnoi sviazi.
Moskva, Sviaz'izdat, 1963. 317 p. (MIRA 16:11)
(Amplifiers (Electronics))

RIZKIN, Abel' Aronovich; KOSTIYENKO, A.I., red.

[Principles of the theory and design of electronic amplifiers] Osnovy teorii i rascheta elektronnykh usilitelei. Moskva, Energiia, 1965. 462 p. (MIRA 18:6)

RIZKIN, A.A.

Letter to the editor. Radiotekhnika 19 no.2:73-75 F '64.
(MIRA 17:6)

RIZKIN, A.A. (Odessa)

Determination of the reaction of a complex circuit using the reaction of a simple circuit. Elektrichestvo no.9:89-90 S '63. (MIRA 16:10)

RIZKIN, E.

AID P - 4343

Subject : USSR/Radio

Card 1/1 Pub. 89 - 3/15

Author : Rizkin, E.

Title : Improving the "DGP-25" loudspeaker

Periodical : Radio, 2, 18-19, F 1956

Abstract : The author discusses the design of this loudspeaker first built in 1952 and criticizes its defects, i.e., its lack of a dust-prevention arrangement, the quick appearance of rust, the frequent breaking of inner parts, and the corrosion of the insulating device which is made of carbolite. Some recommendations follow. Two diagrams.

Institution : None

Submitted : No date

RIZKIN, E.

USSR/Electronics - Radio Relays

Card 1/1

Author: : Rizkin, E.

Title : A Modern Amplifier (Repeater) Station

Periodical : Radio. 5, 26 - 27, May 1954

Abstract : Referring to the gradual increase in power of repeater-amplifier stations for the last ten years, the article describes, in particular, the new 60 kw Moscow relay-repeater station, built in 1949-1950. Several diagrams, photographs and illustrations are shown.

Institution : ....

Submitted : ....

RIZKIN, E.

USSR/Electronics - PA systems

Card 1/1

Author : Rizkin, E.

Title : Radio Equipment for parks and plazas

Periodical : Radio, 3, 14 - 17, Mar, 1954

Abstract : Public address loudspeakers are described and an illustration of the DGR-25 type is presented. A description and analysis of some circuits and installations of electrical equipment used at central and relay stations of public park and plazas are given. A block diagram of a low-frequency operating room of a relay station is also given together with a photograph of a commutation board and preamplification. Cable lines used for connecting central stations with relay stations and between the relay stations and the loudspeakers are also described.

Institution : ....

Submitted : ....

ACCESSION NR: AP4042890 S/0108/64/019/007/0013/0022

B

AUTHOR: Rizkin, I. Kh. (Active member)

TITLE: Optimum characteristics of nonlinear elements of frequency multipliers

SOURCE: Radiotekhnika, v. 19, no. 7, 1964, 13-22

TOPIC TAGS: frequency multiplier, optimum frequency multiplier

ABSTRACT: A theoretical analysis of the optimization of inertialess nonlinear frequency-multiplying systems is presented. The multiplier is termed "perfect" if $f(A \cos \tau)$ contains only m-th harmonic of the input variable $x = A \cos \tau$ and perhaps a d-c component; A is the input amplitude. If the purity of the output spectrum is preserved with a finite variation of A, the multiplier is called a "perfect multiplier of the first kind." If this condition is met only for a certain value $A = A_0$, the multiplier is of the "second kind." These points are proven: (1) Perfect inertialess multipliers of the first kind are impossible (exception:

ACCESSION NR: AP4042890

frequency doubler); (2) Perfect multipliers of the second kind are feasible for any multiplication ratios, and their characteristics coincide with Cheby*shev's polynomials; (3) Perfect multiplication of the first kind is feasible in nonlinear systems of the form f(x, A); (4) In circuits based on f(x) elements, an "optimum" (in a specified sense) multiplication is feasible which provides a pure output spectrum for the amplitude A lying within a specified region $A_1 - A_2$; (5) The optimum characteristic can be determined by solving a set of linear algebraic equations; (6) With a small variation range of A, the optimum characteristic practically coincides with that of Cheby*shev's. Orig. art. has: 2 figures and 19 formulas.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 06Jul63 ENCL: 00

SUB CODE: EC NO REF SOV: 007 OTHER: 000

Card 2/2

82867
S/108/60/015/008/004/006
B012/B067

9.3260

AUTHOR: Rizkin, I. Kh., Member of the Society

TITLE: On the Analysis of Harmonic Frequency Dividers 25

PERIODICAL: Radiotekhnika, 1960, Vol. 15, No. 8, pp. 33-41

TEXT: In the present paper it is shown that in many cases the calculation of processes in a harmonic divider can be based approximately on the analysis of an "equivalent" divider expressed by a second-order equation. This is done by two divider circuits shown in Figs. 1 and 2. It is demonstrated that the initial equation (4) of the m-th order is equivalent to equation (6) of second order. On the basis of this mathematical equivalence each of the divider circuits may be compared with an equivalent electric circuit of second order. The amplitude and the phase of periodic fluctuations of the divided frequency are determined in the present case by setting up the equivalent system and by determining the real roots of equations(7). The latter are the condition for the existence of subharmonic solutions (Ref. 3). Formula (10) for the

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82867

On the Analysis of Harmonic Frequency Dividers

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B012/B067

relation between the equivalent system and the initial system is derived. The processes in the equivalent system are dealt with as quasilinear, and the behavior of the divider is explained in the light of quasilinear concepts. Formula (7) shows that each harmonic divider can be characterized in first approximation by two functions. If these functions are known, the amplitude and the phase of the (approximately) sinusoidal oscillations of the divided frequency may be determined. Here, these functions are calculated for the two divider circuits shown in Figs. 1 and 2. In the following, an equivalent system for dividers with a frequency multiplier is discussed. It is pointed out that the application of the method described to the analysis of processes in concrete divider circuits is discussed in a separate paper. A. A. Kharkevich is thanked for having revised the present paper. There are 2 figures and 4 Soviet references.

SUBMITTED: January 20, 1960

Card 2/2

RIZKIN, Iosif Khaimovich; SHUL'GIN, K.A., redaktor; SKVORTSOV, I.M., tekhnicheskiy redaktor

[Frequency division] Delenie chastoty. Moskva, Gos. energ. izd-vo, 1956. 37 p. (Massovaia radiobiblioteka, no.245) (MLRA 9:10)
(Radio ciruits)

RIZKIN, I.Kh.

Some oscillatory modes of operation of transistor frequency dividers using keying circuits. Radiotekh. i elektron. 9 no.1:87-90 Ja '64. (MIRA 17:3)

FARBER, Yuliy Davydovich; RIZKIN, I.Kh., otv. red.; VOLODARSKAYA, V.Ye., red.; ROMANOVA, S.F., tekhn. red.

[Calculation of the characteristics of multichannel communication systems using transistor amplifiers] Raschet kharakteristik mnogokanal'nykh sistem sviazi s tranzistornymi usiliteliami. Moskva, Sviaz'izdat, 1963. 171 p. (MIRA 17:1)

RIZKIN, I.Kh.

Concerning a certain method for the analysis of harmonic frequency dividers. Radiotekhnika 17 no.3:78-80 Mr '62. (MIRA 15:2)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi imeni Popova.
(Frequency changers)

MURADYAN, Ashot Gerigenovich; SHAMSHIN, Valentin Maksimovich; BORISOV, Aleksandr Ivanovich; MIKIRTICHAN, Grigoriy Makertitivich; RIZKIN, I.Kh., otv. red.; VOLODARSKAYA, V.Ye., red.; CHURAKOVA, V.A., tekhn. red.

[Use of transistors in long-distance telecommunication equipment] Primenenie tranzistorov v apparature dal'nei sviazi. Moskva, Sviaz'izdat, 1963. 71 p. (MIRA 16:7)
(Transistors) (Telecommunication--Equipment and supplies)

RIZKIN, I.Kh.

Theory of delay units containing ferrites with rectangular hysteresis loops and power amplifiers. Vop. rasch. i konstr. elektron. vych. mash. no.1:172-184 '60. (MIRA 14:1)

(Electronic digital computers)
(Pulse techniques (Electronics))

24867 S/109/61/006/007/007/020
D262/D306

9.8300
9.3220

AUTHOR: Rizkin, I.Kh.

TITLE: Properties of non-linear elements of frequency dividers

PERIODICAL: Radiotekhnika i elektronika, v. [illegible], no. 7, 1961, 1092 - 1099

TEXT: The problem of determining strictly what conditions a non-linear element of oscillating circuit should satisfy so as to produce or not to produce frequency division is difficult to solve for complex non-linear systems. In the present article, the author considers this problem for two particular cases, where it is important in practical applications: the conditions determining the frequency division operation in a self-excited synchronized oscillator and the conditions at which there is no sub-harmonics generation in a more general case. Both cases are systems with one degree of freedom. The properties of the non-linear element are determined by the frequency division operation of the normally used Thompson type of

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Properties of non-linear ...

oscillator, synchronized to a sub-harmonic and the wide-band operation due to synchronization. These properties are best characterized by the spectrum at the output due to a sinusoidal driving function at the oscillator input. When dividing by n these properties should be such that they provide the n-th harmonic in the output spectrum. The author states that as far as he is aware no strict proof of this fact has been given. P.G. Korolev (Ref. 4: Tr.VKIAS, 1956, 53, 172) assumes this condition to be necessary, while in his other work the same author (Ref. 5: Radiotekhnika i elektronika 1959, 4, 2, 262) considers it to be adequate but still does not prove it. In the present article the author, after mentioning the above condition, establishes the requirement as to the phase of the n-th harmonic from the point of view of stability. He also shows that in the absence of the n-th harmonic the 2n-th harmonic due to the characteristic of the non-linear element, can be substituted. The author considers the simplest of frequency divider oscillators described by the well known

$$\ddot{x} + x = \mu\varphi(\dot{x}) + \mu\xi x + \lambda_0 \sin n\tau, \quad (1)$$

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in which $\varphi(x)$ - the non-linear characteristic; ξ - the detuning; $0 < \mu \ll 1$ - a small parameter. When such an oscillator becomes synchronized by a small synchronizing force, the energy balance of the system will not change appreciably and conditions

$$U = 0 \quad (2), \qquad V = 0 \quad (3)$$

of a synchronous system could be retained. The system will remain stable if

$$\left.\frac{\partial U}{\partial v}\right|_{\substack{u=u_0\\ v=v_0=0}} = \frac{n^2|q|}{\pi u_0^2}\int_0^{2\pi}\varphi(u_0\cos\tau)\cos n\tau\,d\tau + o(q^2). \qquad (10)$$

is satisfied which means that with a small driving force $/q/$ the stability will be retained if the amplitude of the n-th harmonic in the spectrum $\varphi(u \cos \tau)$ is negative within a certain domain of the amplitude of free oscillations. If the n-th harmonic of the spectrum $\varphi(u \cos \tau)$ is zero, then considering terms of order q^2 in Eq. (10).

$$\left.\frac{\partial U}{\partial v}\right|_{\substack{u=u_0\\ v=0}} = -\frac{n^2q^2}{\pi u_0^2}\int_0^{2\pi}\varphi'(u_0\cos\tau)\cos 2n\tau\,d\tau + O(q^3),$$

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Properties of non-linear ...

is obtained and the stability conditions can still be retained, provided the amplitude of the 2n-th harmonic resulting from $\varphi(x)$ is negative in the region of self oscillations. It is pointed out that the above results cannot be applied to a forced oscillation system. The condition necessary for the generated harmonics to be suppressed is stated to be the increase in losses and detuning. This condition has not, however, been specifically investigated in literature. The system considered further in the text is described by the quasi-linear equation of the second order

$$\ddot{x} + x = \mu[\psi(x)\dot{x} + f(x)] + \lambda_0 \sin n\tau \qquad (11)$$

and conditions are established for which no sub-harmonic generation is possible. Since the harmonics which can sustain subharmonic oscillations and which are generated by the non-linear element, must satisfy the condition $/qn-q/ = 1$ with driving force, having $\omega = n$ applied, or

$$p + q = n + 2j \text{ (12a) and } p + q = 2n + 1 + 2j \text{ (12b)}$$

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Properties of non-linear ... S/109/61/006/007/007/020
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where j = 0, 1, 2 ..., it follows that the non-linear characteristics $f(x)$ and $\psi(x)$ [illegible] must be such that they do not allow the existence of combined frequencies of the above order, or using previously adopted notation, if in the spectrum of the functions $f(A \cos \tau)$ and $\psi(A \cos \tau)$ there is no n-th and no $2(n - 1)$-th harmonics for all values of amplitude A, the non-linear system described by Eq. (11) cannot operate in steady state conditions, the frequency of which is n times less than the input frequency. Strictly speaking the absence of the n-th harmonic in the spectrum is not the only condition necessary for the absence of subharmonics. It can be shown by examples that in a system with no n-th, but with $(2n + 1)$-th harmonics present, division by n is possible. This was shown by K. Schlitching (Ref. 10: Z. Angew. Phys. 1957, 9, 9, 438). There are 10 references: 7 Soviet-bloc and 3 non-Soviet-bloc. The reference to the English-language publication reads as follows: W.L. Hughes, Proc. I.R.E., 1953, 41, 2, 27.

SUBMITTED: September 14, 1960

Card 5/5

ACC NR: AP6001941 SOURCE CODE: UR/0142/65/008/006/0719/0722

AUTHOR: Rizkin, I. Kh.

ORG: none

13
B

TITLE: One principle of synthesizing harmonic frequency dividers 25

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 6, 1965, 719-722

TOPIC TAGS: frequency divider, harmonic frequency divider

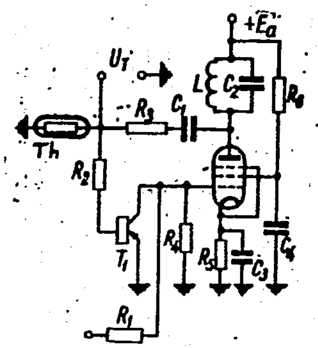
ABSTRACT: A new harmonic frequency divider based on the simultaneous use of an inertialess nonlinear element and an inertial nonlinear element (thermistor) is briefly discussed. The idea of this divider was tested experimentally (see figure below) with a pentode and transistor switching circuit; the voltage from thermistor Th is applied to a frequency converter (transistor T_1). A division ratio of 2—6 was easily obtained within 30—100 kc. With a ratio of 2, the relative input frequency band up to 120% (40—110 kc) was obtained. The effect of the input frequency and voltage charges on the operation of the divider was also studied. Orig. art. has: 5 figures and 1 formula.

Card 1/2 UDC:621.374.4

L 17537-66

ACC NR: AP6001941

O



Principal circuit of a
harmonic frequency divider

SUB CODE: 09 / SUBM DATE: 03Dec63 / ORIG REF: 004 / OTH REF: 001

Card 2/2

[illegible], I. Kh.

Subharmonic oscillations in a circuit with a varactor. Radiotekh. i elektron. 11 no. 2:360-362 F '66 (MIRA 19:2)

1. Submitted June 29, 1965.

RIZKIN, I.Kh.

Optimum characteristics of the nonlinear components of frequency multipliers. Radiotekhnika 19 no.7:14-22 Jl '64. (MIRA 17:12)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S.Popova.

RIZKIN, I.Kh.

Concerning the characteristics of the nonlinear elements of frequency dividers. Radiotekh.i elektron. 6 no.7:1092-1099 Jl '61. (MIRA 14:6)

(Frequency dividers)

RIZKIN, I.Kh.

Equations of some nonlinear radio circuits. Izv. vys. ucheb. zav.; radiotekh. 3 no.4:501-505 Jl-Ag '60. (MIRA 13:10)

1. Rekomendovana kafedroy teoreticheskoy radiotekhniki Moskovskogo elektrotekhnicheskogo instituta svyazi.
(Radio circuits)

On a method for analyzing harmonic ... S/108/62/017/003/009/009
D299/D303

same regime in the original system; 2) To ascertain whether it is possible to pass to an equivalent system if the circuit has discontinuous, and not analytical (as in Ref. 1: Op.cit.) nonlinear characteristics. First, stability is investigated. Instead of Eq. (1), the system

$$\left.\begin{aligned} \dot{\xi}_1 &= -\frac{\omega_{ex}}{n}\xi_2 + \mu\psi^*(\xi_1, \ldots, \xi_m, \omega_{ex}t) \\ \dot{\xi}_2 &= \frac{\omega_{ex}}{n}\xi_1 \\ \dot{\xi}_s &= \lambda_s\xi_s + \mu\psi^*(\xi_1, \ldots, \xi_m, \omega_{ex}t) \\ & \qquad s = 3, 4, \ldots, m \end{aligned}\right\} \qquad (2)$$

is considered. It was found that if the real parts of the roots λ_s of system (2) are negative, then the stability conditions of the subharmonic regime in the original- and equivalent systems coincide. Further, it is shown that an equivalent second-order system can be also designed for a Thomson circuit with nonlinear elements, whose characteristics are piecewise-linear. The stability conditions in the original- and equivalent systems coincide. There are 3 Soviet-

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ACCESSION NR: AP4009978 S/0109/64/009/001/0087/0090

AUTHOR: Rizkin, I. Kh.

TITLE: Oscillation modes in transistorized switched frequency dividers

SOURCE: Radiotekhnika i elektronika, v. 9, no. 1, 1964, 87-90

TOPIC TAGS: frequency divider, transistorized frequency divider, switched frequency divider, relay type frequency divider, frequency division, frequency division mode

ABSTRACT: An experimental investigation is reported of the various modes of oscillations that arise in a transistorized frequency divider (see Enclosure 1) under various conditions of excitation. The following modes were observed: (A) Stationary integral-submultiple oscillations; (B) Strong forced oscillations at the input frequency; (C) Weak forced nonsinusoidal oscillations; (D) Asynchronous aperiodic various modes; (E) Complex processes with alternating starts of

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ACCESSION NR: AP4009978

periodic modes at various submultiples. It has been found that: (1) The input frequency bands which support a given mode depend on the input voltage; (2) They also depend on the direction of variation of voltage or frequency (increase or decrease); (3) Introduction of a considerable phase shift in the feedback circuit simplifies the division, widens the band of division, and promotes the onset of strong asynchronous oscillations. "The author wishes to thank A. A. Kharkevich for his attention to the work." Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 19Dec62 DATE ACQ: 10Feb64 ENCL: 01

SUB CODE: GE NO REF SOV: 008 OTHER: 001

Card 2/3

SOV-109-3-4-4/28

AUTHOR: Rizkin, I. Kh.

TITLE: Analysis of the Thomson Oscillatory Systems (K analizu tomsonovskikh avtokolebatel'nykh sistem)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 4, pp 487-496 (USSR)

ABSTRACT: A feedback system consisting of two quadripoles L and N is considered (see the figure on p 488). The quadripole L is linear and the currents and voltages at its input and output terminals are related by:

$$\left.\begin{aligned} i_1 &= Y_{11}(D)u_1 + Y_{12}(D)u_2 ; \\ i_2 &= Y_{21}(D)u_1 + Y_{22}(D)u_2 . \end{aligned}\right\} \quad (1)$$

where D is the differentiating operator and i_j and u_j are the instantaneous values of currents and voltages. The quadripole N is non-linear and can be described by:

$$\left.\begin{aligned} i_1 &= f_1(u_1, u_2) = \alpha_1 u_1 + \beta_1 u_2 + \varphi_1(u_1, u_2); \\ i_2 &= f_2(u_1, u_2) = \alpha_2 u_1 + \beta_2 u_2 + \varphi_2(u_1, u_2). \end{aligned}\right\} \quad (3)$$

Card 1/5

where $\varphi_j(u_1, u_2)$ are non-linear analytic functions which can be expanded into:

$$\varphi_j(u_1, u_2) = a_{ji}u_1^2 + a_{j2}u_2^2 + a_{j3}u_1u_2 + a_{j4}u_1^3 + \dots \qquad (4)$$

Quantities α_j and β_j are assumed to be real constant coefficients. Differential equations of the system can be written as:

$$\left.\begin{aligned} A_1(D)u_1 + B_1(D)u_2 &= C_1(D)\varphi_1(u_1, u_2); \\ A_2(D)u_1 + B_2(D)u_2 &= C_2(D)\varphi_2(u_1, u_2). \end{aligned}\right\} \qquad (5)$$

where their various coefficients are defined by Eqs.(2) and (6). Eqs.(5) can be transformed into a generalised system of equations given by:

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Analysis of the Thomson Oscillatory Systems

$$\left.\begin{aligned} M_1(D)x_1 + N_1(D)x_2 &= \mu\ \phi_1(x_1,\ x_2,\ \mu)Q_1(D); \\ M_2(D)x_1 + N_2(D)x_2 &= \mu\ \phi_2(x_1,\ x_2,\ \mu)Q_2(D); \end{aligned}\right\} \qquad (16)$$

where x_j is a generalised co-ordinate dependent on currents or voltages. The system of equations can be solved in two ways. The first method consists of the application of the so-called small parameter of Poincaré. This approach was worked out by Bulgakov (Refs.5 and 6) and was first applied to the solution of the oscillatory problems by Andronov. In this method the system of equations can be written in the matrix form as:

$$f(D)y = \mu\phi(y,\ \mu) \qquad , \qquad (17)$$

whose parameters are defined by Eq.(13). For a Tomson system, that is, for a matrix $n = 2$, Eq.(17) can be written as Eq.(23) and its steady state solution can be represented by Eq.(25). The application of this method to the solution of the Tomson system is discussed in some detail and the mathematics of it is explained step by step. The second method is based on the so-called harmonic

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SOV-109-3-4-4/28

Analysis of the Thomson Oscillatory Systems

linearisation. It is assumed that the variables are sinusoidal as expressed by Eqs.(42) so that the system of equations describing the oscillator can be written as Eqs.(43), where the relevant parameters are defined by Eqs.(44). The two methods are briefly compared and it is found (see Eqs. (48) and (49))that in general they lead to different results. Thus, in certain cases, while one method permits the determination of the frequency and the amplitude of oscillations, the other method leads to equations which do not yield sensible solutions. It is, however, possible to determine a set of conditions under which both methods lead to the same results. The author expresses his

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SOV-109-3-4-4/28

Analysis of the Thomson Oscillatory Systems

appreciation to Corresponding Member of the Soviet Academy of Sciences Yu. B. Kobzarev for his valuable advice. There are 1 figure and 6 Soviet references.

SUBMITTED: February 18, 1957

1 Feedback oscillators--Mathematical analysis 2 Operators (Mathematics) --Applications 3. Analytic functions--Applications 4 Differential equations--Applications

Card 5/5

85324

S/142/60/003/004/008/013
E192/E382

9,3220

AUTHOR: Rizkin, I.Kh.

TITLE: Equations of Some Nonlinear Radio-engineering Circuits

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Vol. 3, No. 4, pp. 501 - 505

TEXT: The equations of some types of nonlinear circuits are formulated and the problems connected with the "reduction" of these equations to the standard Cauchy form are considered. First, a linear bipole circuit with a constant parameter is considered. This contains an arbitrary number of dependent and independent sources and negative elements. It is easily shown that the current $i(t)$ and voltage $u(t)$ between the terminals of the circuit are related by:

$$\Delta(D)i(t) = \delta(\Delta)u(t) + A(t) \tag{1}$$

where Δ and δ are polynomials of $D = d/dt$; $A(t)$ depends on the external forces and the structure of the circuit. A nonlinear bipole with variable parameters is then connected to the system. This bipole is described by the

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Equations of Some Nonlinear Radio-engineering Circuits

following implicit expressions:

$$\left.\begin{aligned} U(t, i, u) &= 0 \\ V(t, i, \psi) &= 0; \quad u = D\psi \\ W(t, u, q) &= 0; \quad i = Dq \end{aligned}\right\} \tag{2}$$

where ψ represents the flux linkages and q is the electric charge. By combining Eqs. (1) and (2), the final expression for the system is in the form:

$$F_1(D)x = F_2(D)\Phi(t,x) + B(t) \tag{3}$$

where $F_j(D)$ represents the symbolic polynomials of D and $\Phi(t,x)$ is a known linear function of x. Eq. (3) can also be written as Eq. (4), where h denotes the order of the major derivative and m and n are the degrees of the polynomials F_1 and F_2; a_m and b_n are the major

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Equations of Some Nonlinear Radio-engineering Circuits

coefficients of F_1 and F_2 ; $\delta(pq)$ are the Kronecker symbols. The function Φ should be such as to ensure the existence of suitable derivatives. Similarly, it is possible to consider the case of an arbitrary linear multipole with sources and negative elements. In this case the equation is in the form of Eq. (5), where P_k and Q_k are the polynomials of D and V_k are nonlinear functions. A linear quadripole is now combined with a nonlinear quadripole which is described by the implicit formulae expressed by Eqs. (6). By solving Eq. (6) with respect to any pair of variables (except t) and by considering the equations of the linear quadripole, the system can be described by two formulae expressed by Eqs. (7). Here, x and y denote either two currents or two voltages. Eqs. (7) describe a large class of nonlinear circuits. These equations can be standardized in various ways, depending on whether they are soluble with respect to the major derivatives. In particular, they may be required to meet the condition expressed by Eq. (8). In two cases when the major derivatives

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Equations of Some Nonlinear Radio-engineering Circuits

appear with the coefficients which are not constant, it may be useful to introduce a change of variable in accordance with Eqs. (9). It is sometimes of interest to consider those cases when solubility conditions of the system with respect to the major derivatives are not fulfilled. It is possible that two elements of one of the rows of Eq. (8) are identically equal to zero. In this case, Eq. (7) can be written as Eqs. (10), (11), (12) and (13). By considering this system of equations it is seen that it contains all the solutions of Eqs. (10) to (13). The new system is soluble with respect to the major derivatives and this requires that the condition of Eq. (15) should be fulfilled. It is, therefore, possible to "reduce" this system to the nominal one, except that its order will be different. If none of the elements of Eq. (8) is equal to zero, the equation system can be written as Eqs. (17), where Ψ_j does not contain any major derivatives. It is concluded therefore that when the condition of Eq. (8)

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Equations of Some Nonlinear Radio-engineering Circuits

is not met; the order of the standard system is reduced as compared with the case when the determinant expressed by Eq. (1) is different from zero.
There are 5 Soviet references, one of which is translated from English.

ASSOCIATION: Kafedra teoreticheskoy radiotekhniki Moskovskogo elektrotekhnicheskogo instituta svyazi (Chair of Theoretical Radio-engineering of Moscow Electrical-engineering Institute of Communications)

SUBMITTED: December 1, 1959

X

Card 5/5

RIZKIN, I. Kh.

PHASE I BOOK EXPLOITATION SOV/5027

Nauchno-issledovatel'skiy institut schetnogo mashinostroyeniya

Voprosy rascheta i konstruirovaniya elektronnykh vychislitel'nykh mashin, vyp. 1, (Problems of the Calculation and Design of Electronic Computers, v. 1) Moscow, Mashgiz, 1960. 194 p. Errata slip inserted. 8,000 copies printed.

Ed.: K.Ya. Kobrinskiy, Doctor of Technical Sciences; Ed. of Publishing House: A.G. Akimova; Tech. Ed.: B.I. Model'; Managing Ed. for Literature on Machine Building and Instrument Construction: N.V. Pokrovskiy, Engineer.

PURPOSE: This collection of articles is intended for scientists and technicians working in computing-machine building and related fields.

COVERAGE: This collection of articles presents the results of investigations related to the design and development of electronic computers. It examines the realization of some general and special algorithms by means of digital and analog computers, investigates errors in the realization of functional relationships in electronic analogs, and reviews problems of computing and designing the external outfits and arrangement of digital computers based on various principles of operation. Methods of computation and the basic characteristics of stabilized supply sources for digital and analog computers, methods of computing standard circuits, and problems to related to their reliability are examined. No personalities are mentioned. References accompany some of the articles.

C...

PART I. GENERAL PROBLEMS OF COMPUTER DESIGNING

Belova, A.I., I.M. Vitenberg, E.A. Gluzberg and A.I. Kozlova. Additional Possibilities of Mathematical Electrical Analogs 57

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PART II. EXTERNAL EQUIPMENT OF COMPUTERS

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Rizkin, I.Kh. On the Theory of Delay Components Containing Ferrites With a Rectangular Hysteresis Loop and Power Amplifiers 172

Nosov, Yu.R. Characteristics of Semiconductor Diodes Used in Computing Techniques 185

AVAILABLE: Library of Congress

RIZKIN, I.Kh.

Analysis of harmonic frequency dividers. Radiotekhnika 15 no.8:33-41 Ag '60. (MIRA 13:8)

1. Deystvitel'nyy chlen nauchno-tekhnicheskogo Obshchestva radiotekhniki i elektrosvyazi im. A.S. Popova.
(Frequency changers)

SOV/109-5-1-19/20

AUTHOR: Rizkin, I. Kh.

TITLE: Letter to the Editor. On Equations of Some Nonlinear Circuits

PERIODICAL: Radiotekhnika i elektronika, 1960, Vol 5, Nr 1, p 176 (USSR)

ABSTRACT: The author referes to his previous publication (Radiotekhnika i elektronika, 1958, Vol 3, Nr 4). He points out that limitations concerning the circuits may be considerably lessened by imposing a condition that certain equations should be reducible to the normal form of Cauchy. There are 2 Soviet references.

SUBMITTED: July 27, 1959

Card 1/1

GRIGOROV, Vladimir Borisovich; RIZKIN, Kh.A., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Limiting the noise level in low frequency amplifiers] Snizhenie urovnia shumov v usiliteliakh nizkoi chastoty. Moskva, Gos. energ. izd-vo, 1956. 36 p. (Massovaia radiobiblioteka, no.244) (MIRA 9:9)
(Radio--Interference) (Amplifiers, Electron-tube)

Deceased

RIZKIN, Yefim Aronovich; BERG, A.I., redaktor; DZHIGIT, I.S., redaktor; KULIKOVSKIY, A.A., redaktor; SMIRNOV, A.D., redaktor; TARASOV, F.I., redaktor; TRAMM, B.F., redaktor; CHECHIK, P.O., redaktor; SHAMSHUR, V.I., redaktor; KONASHINSKIY, D.A., redaktor; VORONIN, K.P., tekhnicheskiy redaktor.

[How to build a collective farm broadcasting studio] Kak postroit' kolkhoznuiu rechevuiu studiiu. Moskva, Gos.energ. izd-vo, 1956. 14 p. (Massovaia radiobiblioteka, no.239). (MIRA 9:6)
(Radio stations) (Radio in agriculture)

* Yefim Aronovich Rizkin obituary Elektronika 17 no.3, p.3 of cover
(1904 - 1963) Mar 1963

HORSKY, Dionyz, inz. CSc.; RIZMANOVA, Marta, inz.

New method of wood stage pressure impregnation. Drevo 20 no.3:89-92 Mr '65.

1. Faculty of Wood Industry of the Higher School of Forestry and Wood Industry, Zvolen.

YUGOSLAVIA / Zooparasitology - Parasitic Protozoa. G-1

Abs Jour : Ref Zhur - Biol., No 18, 1958, No. 81680

Author : Hajsig, M; Riznar, S.
Inst : Not given
Title : Use of Mucoagglutination Reaction for Diagnosis of Genital Trichomonosis in Cattle

Orig Pub : Veterin. arh., 1955, 25, No 9-10, 300-307

Abstract : Of 19 cows and calves with trichomonosis a positive reaction of mucoagglutination (MA) was noted in 16. In animals clinically and anamnestically suspected of trichomonosis, specific antibodies were found in 63.3% of cases, although trichomona were not found. In cows with endometritis not of the trichomonas type, MA was positive in 14.3%. In healthy animals MA was not observed. Trichomonosis can more frequently be established by MA than by microscopy of inherent preparations.

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Vaginal mucus should be used for MA outside of the menstrual period (in the latter case it is collected from the cervix periphery). A slight bacterial insemination of vaginal mucus does not interfere with MA. MA can be used in any institution which has fresh trichomonas cultures. -- G. A. Orlov

Card 2/2

USSR/Physics
Seismology
Geophysics

Jun/Aug 1947

"Tensor Transformation of Anisotropic Media to Isotropic Medium, in Geometrical Seismology," G. V. Riznichenko, 22 pp

"Iz Ak Nauk SSSR, Ser Geog i Geofiz" Vol XI, No 4

Seismic problems of inhomogeneous media, A, are reduced to the corresponding problems of homogeneous medium, $\bar{A}$.

Velocity in A is determined by the tensor-ellipsoid indicatrix of velocity. A is transformed to $\bar{A}$ with constant velocity Vo.

20T54

The metric tensors of spaces A and $\bar{A}$ are related thus:

$\bar{A} = Vo^2 WA$ (W is the velocity tensor Wij)

A practical method of transformation is given for a special case, with nomograms.

20T54

RIZNICHENKO, G. V.

RIZNICHENKO, G. V.

Riznichenko, G. V. Transformation of media in geometrical seismology. Bull. Acad. Sci. URSS. Sér. Géograph. Géophys. [Izvestia Akad. Nauk SSSR] 11, 311–333 (1947). (Russian. English summary)

The solution of typical direct problems and the interpretation of seismic prospection (inverse problem), in particular, the mapping of reflecting or refracting surfaces as deduced from observations, are much easier if the wave velocity W is constant, the space being isotropic and homogeneous with respect to W. The author studies the possibility of reducing the problems of geometrical seismology in an anisotropic and inhomogeneous Euclidean space A to the corresponding problems for an isotropic and homogeneous space $\bar{A}$, transform of A. In general $\bar{A}$ is non-Euclidean and the metric tensor $T(\bar{A})$ of $\bar{A}$ is given by the relation $T(\bar{A}) = V_0^2 W \cdot T(A)$. In some particular cases of two dimensional problems $\bar{A}$ is Euclidean and such cases may have practical importance.

E. Kogbetliantz.

Source: Mathematical Reviews, 1948, Vol 9, No. 3

RIZNICHENKO, I. V

The following papers were read at the Meeting of the European Seismological Commission in Utrecht, Holland, 8-12 April 1958:

GAL'PERIN, Ye. I. and KOSMINSKAYA, I. P. (Moscow)
"Seismic Investigations of the Deep Crustal Structure According to the IGY Plan."

SAVARENSKIY, Ye. F. (Moscow)
"Determination of Earthquake Magnitude and Intensity in the USSR."

RIZNICHENKO, I. V. (Moscow)
"Quantitative Determination and Mapping of Seismic Activity."

KEYLIS-BOROK, V. I. (Moscow)
"Estimation of Displacement in an Earthquake Source and of Source Dimensions."

KARUS, Ye. V. (Moscow)
"Absorption of Stationary Elastic Vibrations in Rocks."

(five of above authors attended the Conference)

SO: Bergakademie, July 1958, Uncl.

S/030/62/000/006/006/007
I023/I223

AUTHOR: Fedynskiy, V.V., Doctor of Physico-Mathematical Sciences and Riznichenko, Yu. B., Corresponding member of the Academy of Sciences USSR

TITLE: Research on the Earth's Crust

PERIODICAL: Akademiya nauk, Vestnik, no. 6, 1962, 86-89

TEXT: A conference of the International Union of Geodesy and Geophysics took place in Paris on 19-22 of March. Problems of the structure of the Earth crust were discussed and geogolgical, geophysical, geochemical and oceanographic data were presented. The most important geophysical method discussed was seismology, after it gravimetry and afterwards other methods. The American methods of observations of volume waves from explosions are similar to the methods developed in USSR. The Americans follow the method of deep seismic sounding, suggested by academician G.A. Gamburtsev more than 10 years ago, but their work lags both in quality and quantity. I.P. Kosminskaya gave a talk on the problem of deep seismic boundaries. I.V. Pomerantsevaya presented data on the propagation velocities of longitudinal waves in different rocks. Data

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Research on...

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collected during the International Geophysical Year in the region between the Pacific and the Asiatic continent were presented: Ye. I. Gal'perin - deep seismic soundings and O.N. Salov'yeva - aeromagnetic investigations. The problem of the reduction of the gravity force was discussed by participants from several countries. V.V. Fedynskiy reported on the Soviet deep-drilling project. The conference decided to recommend the definition of different layers by their propagation velocity of longitudinal waves. The suggestions of Yu. Riznichenko (USSR) concerning seismological investigations on supported profiles and of D.P. Vullard (USA) concerning a new value of density ($2.8\ gr/cm^3$) for reduction of gravimetric measurements will be discussed at the sessions of the Association of seismology.

Card 2/2

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"Seismic Properties of the Perpetually Frozen Ground,"

Iz. Ak. Nauk SSSR, Ser. Geograf. i Geofiz., Nos. 1-6, 1942.

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"On Reciprocal Points in the Seismic Reflection Method"

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RIZNICHENKO, Yu. V.

"Ruled Transparent Sheet for Theoretical Hydrographs of Reflected Waves". Iz AN SSSR, Ser Geograf i Geofiz, No 5, 1946 (435-448).
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SO: U-3218, 3 Apr 1953

BC 3.

[illegible] 5/1948

795 ON THE PROSPECTING POSSIBILITIES OF THE CORRELATION REFRACTION METHOD (CRM).—G. A. Gamburzev, J. V. Riznichenko and I. S. Berzon (*C.R.* (*Doklady*) *Acad. Sci. U.R.S.S.*, **51**, 513, 1946). General consideration is given to the application of the C.R. method of prospecting, which is based upon simultaneous recording and tracing of a series of refracted waves corresponding to different refracting boundaries. Differences in the C.R. method to that of first arrivals and the reflection methods are discussed, and consideration is given to the mode of recording and tracing the waves, chief among which are the possibilities of

determining the boundary velocities, avoiding the interference of any type of direct waves due to shooting, study of the non-reflecting boundaries, and use of the dynamic characters of seismic records.

Inst. Theoretical Geophysics

USSR/Geology
Seismology

Mar 1947

"Seismic Velocities in Stratified Media," Yu. V. Riznichenko, Inst Theoretical Geophysics, Acad Sci USSR, 19 pp

PA 50T41

"Izv Akad Nauk SSSR, Ser Geograf i Geofiz" Vol XI, No 2

At present, when the problem of more detailed and exact determination of the structure of geological media is before seismometry, the question of what velocities are determined by different methods of seismometry, and the relation between these velocities gains in interest. Author gives determination of

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USSR/Geology (Contd)

Mar 1947

following concepts: wave velocity, effective velocity, layer velocity, boundary velocity, and other velocities met with in the seismometry of the USSR. Discusses relations between different velocities for different cases of the structure of geologic media where seismic waves are propagated. Fifty-three item bibliography. Submitted by Academician L. S. Leybenzon.

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RIZNICHENKO, YU. V.

[illegible], [illegible]

"[illegible] of Reflections",
[illegible] SSSR, [illegible] (?-7)

SO: U-[illegible], 11 Mar [illegible]